

**II. REMARKS**

Of the originally filed claims 1-11, claims 7-11 are currently under examination in the Application and stand rejected; claims 1-6 were previously canceled. This Reply requests cancellation of claim 8 and that new claims 12-16 be entered and examined.

Claim 7 is amended to recite that the non-ionic surfactant comprises a mixture of: (1) a polyethylene glycol-block-polypropylene glycol; and (2) a polyethylene glycol-*ran*-polypropylene glycol, both having a molecular weight between 2,000 and 10,000. This Amendment is supported by the specification of the Application (the "Specification") at page 2, in the section entitled Summary of the Invention.

New claims 12-16 correspond to original claims 2-6 and, therefore, are supported by the Application as originally filed. Since all Amendments are supported by the Application as filed, there is no issue of new matter.

**III. THE REJECTIONS UNDER 35 U.S.C. § 103**

Claims 7-11 stand rejected under 35 U.S.C. 103 over U.S. patent no. 5,296,128 (issued Mar. 22, 1994) to M. Gernon *et al.* ("Gernon"). Applicants respectfully request withdrawal of the 35 U.S.C. 103 rejections over Gernon because Gernon does not teach or suggest an electroplating solution having a non-ionic surfactant that comprises a mixture of: (1) a polyethylene glycol-block-polypropylene glycol; and (2) a polyethylene glycol-*ran*-polypropylene glycol, both having a molecular weight between 2,000 and 10,000.

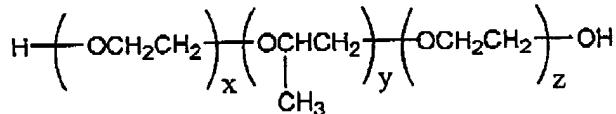
To support obviousness, a reference must suggest to one of ordinary skill in the art that the claimed invention could be carried out with a reasonable likelihood of success. Both the suggestion and the expectation of success must be founded in the prior art. *In re Dow Chem. Co.*, 837 F.2d 469, 472 (Fed. Cir. 1988). Furthermore, disclosure of a large genus of chemical compounds does not render a particular species or subgenus within the genus *prima facie* obvious. *In re Baird*, 29 U.S.P.Q. 2d 1550, 1552 (Fed. Cir. 1994); MPEP 2144.08 (II) ("The fact that a claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness"). When claims to chemical-compound species or subgenus is based on a single prior art reference that discloses a genus encompassing the claimed species or subgenus, but does not expressly disclose the particular claimed genus or subgenus, the Examiner must cite additional prior art to support obviousness under 35 U.S.C. § 103. MPEP § 2144.08(I). In other words, a determination of patentability under 35 U.S.C. § 103 should be

made upon the facts of the particular case in view of the totality of circumstances. In re Dillon, 16 U.S.P.Q. 2d 1897, 1901 (Fed. Cir. 1990).

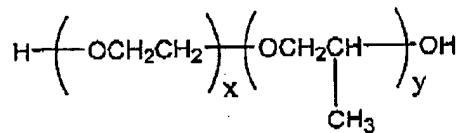
Applicants' claims are directed to improved electroplating solutions that provide bright tin-bismuth alloy solder coatings having a low organic (carbon) content wherein the subject chemical components provide the necessary complex physical, electrical, and chemical interactions. Applicants' claimed electroplating solutions require a non-ionic surfactant comprising:

- (a) a polyethylene glycol-block-polypropylene glycol with a molecular weight between 2,000 and 10,000, and
- (b) a polyethylene glycol-*ran*-polypropylene glycol with a molecular weight between 2,000 and 10,000;

For brevity, this non-ionic surfactant mixture is referred to herein as "Applicants' Polyethylene-Based Surfactant Mixture". As is well known in the art, polyethylene glycol-block-polypropylene glycol has the chemical formula:



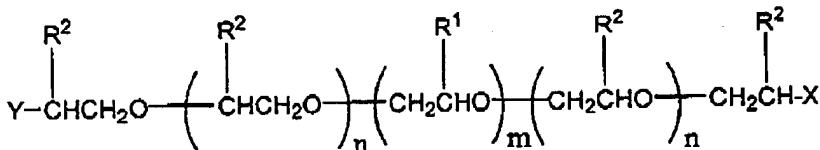
It is also well known in the art that polyethylene glycol-*ran*-polypropylene glycol has the chemical formula:



See for example, the Aldrich Chemical Co. chemical catalog (see <http://www.sigmaaldrich.com/>).

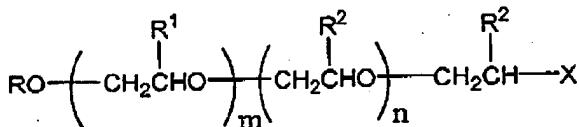
Gernon discloses methanesulfonic acid based electroplating baths wherein gallic acid functions in multiple roles as an antioxidant, grain refiner, selective precipitant, and chelator. Gernon provides absolutely no teaching or suggestion of an electroplating bath comprising Applicants' Polyethylene-Based Surfactant Mixture in combination with Applicants' other claimed electroplating components. Of course, that being the case, Gernon provides no teaching or suggestion of Applicants' claimed molecular weight range of 2,000 to 10,000.

Geron discloses two large genuses of non-ionic surfactants that he terms "EO/PO" and "blocked EO/PO" copolymers", which are represented below as Geron Genus I and Geron Genus II. Geron at column 4, lines 10-36.



Geron Genus I

where  $\text{R}^1$  and  $\text{R}^2$  may be hydrogen or methyl and m and n may be integers between 1 and 100; X and Y may be a halogen, alkyl, aryl, aralkyl, alkoxy, aralkoxy or hydroxyl group. Geron column 4, lines 12-22.



Geron Genus II

where R represents a  $\text{C}_1$  to  $\text{C}_{18}$  alkyl group, a  $\text{C}_1$  to  $\text{C}_{12}$  alkyl benzene, a beta-naphthalene nucleus or a hydrogen atom;  $\text{R}^1$  and  $\text{R}^2$  may be hydrogen or methyl and m and n may be integers between 1 and 100; and X may be a halogen, alkyl, aryl, aralkyl, alkoxy, aralkoxy or hydroxyl group. Geron column 4, lines 23-35.

As is apparent, these genuses are represented by complex chemical formulae with variables R, R1, R2, X, Y, m, and n, and likely encompass millions of individual compounds (species). In order for one of skill in the art to arrive at Applicants' Polyethylene-Based Surfactant Mixture from the teachings of Geron, he would have to:

- (1) choose the particular combination of variables R1, R2, X, and Y of Geron Genus I to arrive at polyethylene glycol-block-polypropylene glycol (the first component of Applicants' Polyethylene-Based Surfactant Mixture);
- (2) choose the particular combination of variables R, R1, R2, and X of Geron Genus II to arrive at polyethylene glycol-ran-polypropylene glycol (the second component of Applicants' Polyethylene-Based Surfactant Mixture).
- (3) choose the values of m and n in each of Geron Genus I and II such that the molecular weight falls within the range of 2,000 to 10,000.

Nowhere in Geron is there motivation for even one the above, let alone all three. Should the Examiner disagree, Applicants respectfully request that such motivation be set forth in an advisory action. In other words, Geron's large genuses do not disclose the species polyethylene glycol-block-polypropylene glycol and polyethylene glycol-*ran*-polypropylene glycol of Applicants' Polyethylene-Based Surfactant. As discussed above, disclosure of a large genus of chemical compounds does not render a particular species or subgenus within the genus *prima facie* obvious. In re Baird, 29 U.S.P.Q. 2d 1550, 1552 (Fed. Cir. 1994); MPEP 2144.08 (II)

In sum, Applicants respectfully request withdrawal of the 35 U.S.C. 103 rejections over Geron because Geron does not teach or suggest an electroplating solution having a non-ionic surfactant that comprises a mixture of: (1) a polyethylene glycol-block-polypropylene glycol; and (2) a polyethylene glycol-*ran*-polypropylene glycol, both having a molecular weight between 2,000 and 10,000.

**IV. FINAL REJECTION IS PREMATURE**

Applicants respectfully request that the Examiner withdraw the finality of rejection pursuant to MPEP § 706.07(d) because final rejection is premature. That is, the Examiner's grounds for rejection in the Office Action are new. See, MPEP § 706.07(a).

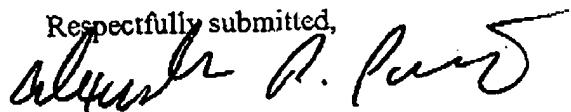
**V. CONCLUSION**

In view of the above amendments and remarks, Applicants have overcome all rejections, and request reconsideration and allowance of the claims. Should the Examiner disagree, Applicants request he notify Applicants' Agent to permit timely scheduling of an Examiner interview. No fee is believed due for entry of this Reply, should any fee be due, however, please charge such fees to Deposit Account number 501358.

**VI. AUTHORIZATION FOR TIME EXTENSION UNDER 37 C.F.R. § 1.136(a)**

This Reply is believed timely filed within the statutory period of time ending on December 4, 2003 (3 months from the Office Action mailing date of September 4, 2003), therefore, no extensions of time are believed necessary. However, should any extension of time under 37 C.F.R. § 1.136(a) be necessary for entry of this Reply, please consider this paragraph a Petition requesting such extension and the signature below as express authorization for payment of any fees, which should be charged to Deposit Account No. 501358.

Respectfully submitted,



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